

Forest Service

Southern Forest **Experiment Station**

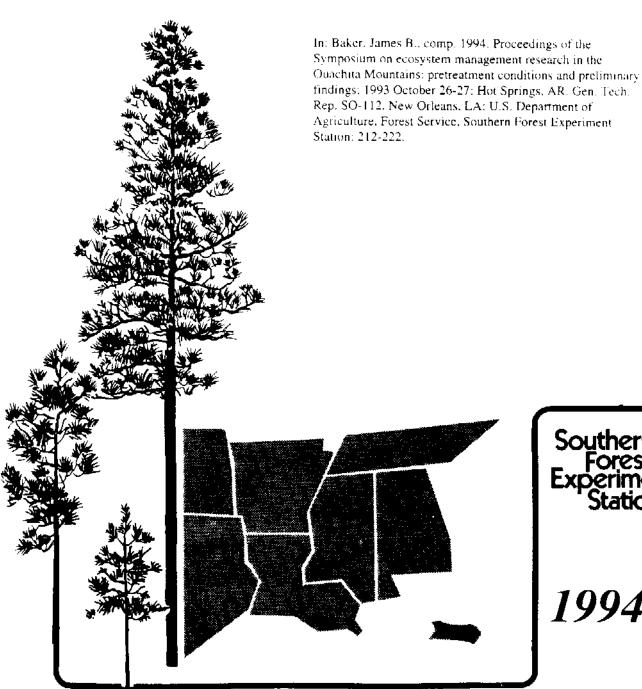
New Orleans. Louisiana

Proceedings Reprint



VISITOR PREFERENCE FOR FOREST SCENERY IN THE OUACHITA NATIONAL **FOREST**

Herrick, Theresa A ; Rudis, Victor A.



1994

Visitor Preference for Forest Scenery in the Ouachita National Forest

Theresa A. Herrick and Victor A. Rudis²

ABSTRACT

The majority of forest visitors interviewed between June through October 1991 and April through October 1992 preferred forest scenery that was "undisturbed," contained a "variety of natural features," or was associated with "natural" or "beauty" descriptions. Few respondents preferred "younger tree species with open areas." Results suggest that undisturbed conditions are important along with vegetation management to support a variety of natural features. Slight differences are noted when examining preferences by respondents' sex, age class, education level, principal recreation activity, month visited, and sites where interviewed. The order of questions appeared to affect the respondents' forest scenery descriptions. Interviews were conducted as part of an onsite survey involving a larger recreation-user study (CUSTOMER survey) for sites among four USDA Forest Service Ouachita National Forest ranger districts. Recommendations are made for using CUSTOMER survey data in future forest scenery preference research.

INTRODUCTION

The U.S. Department of Agriculture, Forest Service (USDA-FS), National Forest System, is charged with managing it's nearly 200 million acres of public land under a multiple-use philosophy. Recreation is one of the identified multiple uses. To adequately plan for recreation, public land managers need data describing the characteristics and preferences of recreating visitors.

To provide information about recreational use and users of public land, an interagency, multidisciplinary group of scientists, planners, and policy analysts developed tools and procedures necessary for the task. The result of this effort was the Public Area Recreation Visitor Survey (PARVS) developed and tested in 1985 by the Outdoor Recreation and Wilderness Assessment Group (ORWAG) of the USDA FS Southeastern Forest Experiment Station (Reed and others 1992). Data were collected on recreation activities, recreation trips, expenditures, demographics, and satisfaction with services and facilities. PARVS was later modified to obtain information about special issues identified by forest managers and believed to be important for particular sites. The revised PARV surveys became known as CUSTOMER surveys. CUSTOMER surveys were conducted for selected Ouachita National Forest sites in 1991 and 1992.

Parallel to CUSTOMER surveys, scientists from the visual quality research group associated with the New Perspectives (now Ecosystem Management) research team (Rudis and others 1994) began a study of various silvicultural treatments and their visual impacts. The ORWAG team and the visual quality research group made an effort to coordinate research activities for CUSTOMER survey sites on the Ouachita National Forest. However, due to budget and interview-time restrictions, flexibility in the use of additional questions and alternative sampling procedures was limited. As a compromise, two short questions were added to the special issues section: one ranking preferences for forest descriptions and another describing preferred forest scenery.

Presented in this report are initial findings of these two questions added to the special issues section. The primary goal is to describe the scenery preferences of CUSTOMER survey respondents by site and the utility of simplified survey questions to respondents' scenic preferences. A secondary goal is to develop likely hypotheses regarding differences in scenic preferences that vary with forest visitor demographics, principal recreation activity, month of visit, and survey site location.

Paper presented at the Symposium on Ecosystem Management Research in the Ouachita Mountains: Pretreatment Conditions and Preliminary Findings, Hot Springs, AR, October 26-27, 1993.

Associate professor and head, Department of Recreation and Park Administration, Arkansas Tech University, Russellville, AR 72801-2222; research forester, Forest Inventory and Analysis Unit, USDA Forest Service, Southern Forest Experiment Station, Starkville, MS 39759-0906, respectively.

SURVEY SITES AND SAMPLING DESIGN

Survey sites were located in four ranger districts in the Ouachita National Forest. During the summer and fall of 1991, forest visitors were surveyed at 12 locations in or near the Winding Stair National Recreation Area (NRA) within Kiamichi ranger district in Oklahoma. In 1992, visitors were surveyed in Arkansas at 10 locations: 2 in the Caddo ranger district at Little Missouri Falls and Albert Pike Recreation Area: 1 in the Mena ranger district at Shady Lake; and 7 in or near Lake Sylvia on the Winona ranger district. A complete list of locations for both years appears in table 1.

Table 1 "Ouachua National Forest sites and locations where CUSTOMER survey interviews were conducted in 1991 and 1992

Site, ranger district (RD), time period, and survey locations Lake Sylvia, Winona RD Winding Stair National Recreation Area, Kiamichi RD April through October 1992 June through October 1991 - Lake Sylvia campground - Equestrian Campground - Lake Sylvia beach and picnic area Billy Creek - Quachita National Recreation Trail tradhead - Winding Stair - Trees of Forest Trail parking lot Cedar Lake South · Flatside/Pinnacle Vista parking lot - Cedar Lake North - Winona Scenic Drive, FS #132 - Cedar Lake Shady - Lake Winona Road FS #778 - West End Vista - Emerald Vista Caddo, Caddo RD June through August 1992 Ken - Horsethief and Quachita Junction - Little Missouri Falls Cedar Lake Dam. - Albert Pike Recreation Area - Cedar Lake Southshore Mena, Mena RD June through August 1992 - Shady Lake

Visitors responded to a 20 minute onsite interview that included a special issues section. Nearly all visitors encountered participated in the survey³. These onsite surveys served as an exit interview of visitors who had completed or nearly completed their visits. Details on nonscenery questions and other responses from both onsite interviews and a related followup mail questionnaire are reported elsewhere (Coker and others 1993a, 1993b; Reed and others 1992).

In 1991, the survey instrument was split into two versions. Both versions contained identical demographic and trip profile sections. One version also contained questions about other onsite activities, contingent valuation, and the National Satisfaction Index. Another version contained an annual activity profile and the special issues section. An example of the special issues section for the Winding Stair NRA is found in the Appendix. In 1992, all the survey instruments were the same, and all onsite surveys contained a special issues section.

Examined in this report are two questions about forest scenery in the special issues section: (1) What type of scenery do you prefer in a forest environment? and (2) What words would you use to describe your preference in forest scenery? The two questions were asked in their present order for Winding Stair NRA and Lake Sylvia sites; reverse order was used for the Caddo and Mena sites.

For the first question, respondents were asked to rank forest descriptions in order of preference from "1" (most preferred) to "5" (least preferred). Results are reported for the one description comprising the majority of responses that were most preferred; i.e., ranked "1" or "2" out of 5, for each of the sites surveyed. A second description is listed if one description did not comprise the majority of responses. Forest descriptions provided were:

Undisturbed.	
Large mature trees.	
Trees of mixed sizes and species.	
Younger tree species with open areas.	
Variety of natural features (cliffs, rocks, water, or	etc.)

CUSTOMER survey staff, 1993 pers. comm. to senior author by phone, Athens, GA: USDA-FS, Outdoor Recreation and Wilderness Assessment Research Unit.

For the second question, a content analysis of responses was performed using PROC CONTENT (SAS Institute, Inc. 1989). Results are reported by survey site for the most frequently used word and word combinations.

RESULTS

Ranked Forest Descriptions and Demographics

Table 2 presents the distribution of forest descriptions by rank for Winding Stair NRA. Most (71 percent) respondents indicated "variety of natural features" as the preferred forest scenery. The majority of respondents were males (63 percent), between the ages of 31 and 50 years old (65 percent), and who had completed high school or some college courses (64 percent). The majority were interviewed in July (53 percent) (table 3). Median preferences among demographic classes were for "variety of natural features" (table 3). Principal recreation activities of respondents were sightseeing (41 percent), followed by developed camping (25 percent), and other activities (33 percent) (table 4). Differences in preferred scenery were suggested, with sightseeing respondents preferring "variety of natural features" (77 percent) and developed campers preferring "undisturbed" scenery (63 percent) (table 4).

Respondent preferences at the Lake Sylvia site differed from those at Winding Stair NRA. The majority preferred "undisturbed" scenery; "large mature trees" and "trees of mixed sizes and species" were also important (table 5). Respondents were predominantly males (60 percent), between the ages of 21 to 50 years old (77 percent), and who had completed high school or some college courses (68 percent). The majority were interviewed in June and July (69 percent) (table 6). Median preferences among demographic classes were for "undisturbed" scenery and "large mature trees" (table 6). Principal recreation activities among respondents were camping (33 percent) and swimming (24 percent), followed by 18 other activities (43 percent) (table 7). Some variation in preferences existed among recreational activities.

Table 8 presents the distribution of forest descriptions by rank for the Caddo site. The majority (66 percent) of respondents indicated "undisturbed" as the most preferred forest scenery. The majority of respondents were males (65 percent), between the ages of 31 and 50 years old (57 percent), and who had completed high school or some college courses (65 percent). The majority were interviewed in August (52 percent) (table 9). Median preferences among demographic classes were for "undisturbed" scenery. Principal recreation activities among respondents were camping (49 percent) and sightseeing (22 percent), followed by eight other activities (28 percent) (table 10). Differences in scenery preferences between "variety of natural features" and "undisturbed" were slight, as both were closely ranked.

Respondent preferences at the Mena site were similar to those for Winding Stair NRA and the Caddo site. The majority indicated preference for "undisturbed" scenery, with "variety of natural features" competing for second place (table 11). Respondents were predominantly males (73 percent), between the ages of 31 and 50 years old (65 percent), and who had completed high school or some college courses (60 percent) (table 12). The majority were interviewed in July (85 percent) (table 12). Median preferences among age classes and education completed were for "undisturbed," "variety of natural features," and "trees of mixed sizes and species" (table 12). Principal recreation activities among respondents were camping (89 percent) and sightseeing (4 percent), followed by five other activities (7 percent) (table 13). The majority of campers preferred "undisturbed" scenery.

Comparisons of forest scenery preferences among the four sites were made by comparing modal rank; i.e., the rank associated with the maximum number of respondents. Modal rank for the "undisturbed" forest description is 1 (most preferred) for all sites (tables 2, 5, 8, and 11). Comparisons suggest that there are important differences in other preferences between Lake Sylvia and other sites. "Large mature trees" has a modal rank of 2 for Lake Sylvia and 3 for the other sites. "Trees of mixed sizes and species" has a modal rank of 2 for Lake Sylvia and 4 for other sites. "Younger tree species with open areas" has a modal rank of 3 at Lake Sylvia and 5 at other sites. "Variety of natural features" has a modal rank of 4 at Lake Sylvia and 1 at other sites.

Other modal rank comparisons suggest little difference in demographics (tables 3, 6, 9, and 12). A notable difference exists in principal activities between the variety of activities at Lake Sylvia and the prominence of sightseeing at Winding Stair NRA when compared with other sites (tables 4, 7, 10, and 13). Data in tables 2, 5, 8, and 11 illustrate a lack of response for forest descriptions from some forest visitors.

Table 2.- Forest scenery preferences by forest description and rank (I=most preferred) in Winding Stair NRA, 1991, sample size = 28

Rank					
1	2	3	4	.5	ranked
	fre	quency	of re	sponse	s · · ·
24	18	11	1.3	9	3
14	20	26	1.2	3	3
10	14	18	29	4	3
1	1	9	7	57	3
29	24	9	12	1	3
	24 14 10	1 2	1 2 3 frequency 24 18 11 14 20 26 10 14 18 1 1 9	1 2 3 4 frequency of re 24 18 11 13 14 20 26 12 10 14 18 29 1 1 9 7	1 2 3 4 5 frequency of response 24 18 11 13 9 14 20 26 12 3 10 14 18 29 4 1 1 9 7 57

Table 3 - Preferred tranked first or second out of five) forest descriptions for a majority of respondents by sex, age, education, and month of interview. Winding Stair NRA, 1991

Table 4.- Preferred (ranked first or second out of five) forest descriptions for a majority of respondents by principal activity, Winding Stair NRA, 1991

Frequency

53

24 12 8

3 3 2

2

1 1

1

Demographic	Sample	Majority pre	ferred	Principal	Sample	Majority preferre	ed
category	\$1 2 ¢	Description	Frequency	activity	size	Description Fre	quenc
All respondents	75	Variety of natural features	53	All respondents	75	Variety of natural features	
Sex				Sightseeing	31	Variety of natural features	2
Male	47	Variety of natural features	32	Developed camping	ıg 19	Undisturbed	1
Female	28	Variety of natural features	21	Horseback riding	11	Variety of natural features	
				Day hiking	3	Variety of natural features	
Age class				Fishing	3	Large mature trees	
11-20	3	Undisturbed	3	Backpacking	2	Undisturbed	
21-30	11	Undisturbed	9	Primitive camping	, 2	Trees of mixed sizes and species,	
31-40	15	Variety of natural features	10			variety of natural features	
41-50	23	Variety of natural features	14	Bicycling	1	Trees of mixed sizes and species	
51-60	11	Variety of natural features	8	Hunting	1	Large mature trees	
61.70	В	Undisturbed	6	Swimming	1	Trees of mixed sizes and species	
71-80	4	Undisturbed	4	Wildlife observati	on 1	Undisturbed	
Education complet	ted						
≤ 8th grade	1	Undisturbed	1				
Some high school	of 3	Large mature trees	3				
High school	22	Variety of natural features	16				
Some college	26	Variety of natural features	18				
Associate degree	13	Variety of natural features	12				
Bachelor degree	10	Undisturbed, variety of				_	
		natural features	6			•	
Month of interview	v						
June	22	Variety of natural features	16				
July	40	Variety of natural features	27				
August	5	Undisturbed, variety of					
		natural features	4				
October	8	Variety of natural features	6				

Table 5 -- Forest scenery preferences by forest description and rank (1 = most preferred), Lake Sylvia. 1992, sample size ≈ 283

		Not				
Forest description	1	2	3	4	5	ranked
		 fre	quenc	y of re:	sponse	s
Undisturbed	127	26	25	6	81	18
Large manire trees	58	78	42	17	70	18
Trees of mixed sizes						
and species	31	94	70	31	39	18
Younger tree species						
with open areas	16	43	102	44	60	18
Variety of natural features						
(cliffs, rocks, water, etc.)	33	24	26	167	15	18

Table 6.-- Preferred (ranked first or second out of five) forest descriptions for a majority of respondents by sex. age, education, and month of interview, Lake Sylvia, 1992

Table 7.-- Preferred (ranked first or second out of five) forest descriptions for a majority of respondents by principal activity. Lake Sylvia, 1002

Demographic	Sample	Majority prefe	rred
category	size	Description I	requency
All respondents	265	Undisturbed	153
Sex			
Male	159	Undisturbed	93
Female	106	Undismrbed	60
Age class			
11-20	11	Undisturbed	7
21-30	49	Undisturbed, trees of mixed	
		sizes and species	25
31-40	97	Large mature trees	57
41-50	59	Large mature trees	34
51-60	32	Undisturbed	24
61-70	14	Undisturbed	9
71-80	3	Undisturbed	2
Education comple	red		
< 8th grade	4	Trees of mixed sizes and specie	s 3
Some high scho	ol 18	Undisturbed	11
High school	89	Undisturbed	16
Some college	91	Undisturbed	18
Associate degre	c 38	Large mature trees	12
Bachelor degree	26	Undisturbed	16
Month of intervie	w		
Aprıl	25	Undisturbed	14
May	3.2	Large mature trees	20
lune	83	Large mature trees	46
July	101	Undisturbed	61
August	18	Undisturbed, large mature trees	10
September	6	Undisturbed	5

Principal	Sample	Majority prefe	rred
activity	size		Frequency
All respondents	265	Undisturbed	153
Camping	87	Undisturbed, large mature tree	s 49
Swimming	64	Undisturbed	44
Running or joggir	ng 25	Undisturbed, trees of mixed	
	-	sizes and species	15
Relaxing	20	Undisturbed, trees of mixed	
		sizes and species	11
Picnicking	17	Undisturbed, trees of mixed	
_		sizes and species	11
Family gathering	14	Trees of mixed sizes and specie	s 9
Day hiking	7	Undisturbed	5
Fishing	5	Large mature trees	4
Backpacking	5	Undisturbed	3
Sightseeing	1	Undisturhed	2
Leading a group	4	Large mature trees	3
Sunbathing	3	Large mature trees	.3
Nature study	2	Younger tree species with oper	n
•		areas, undisturbed areas	1
Walking	2	Large mature trees, younger tre	:e
•		species with open areas	;
Berry picking	1	Large mature trees	1
Getting wood	1	Undisturbed	1
Horseback riding	1	Trees of mixed sizes and specie	es 1
Joy riding	1	Undisturbed	1
Small game hunu	ng l	Trees of mixed sizes and	
-	-	species, undisturbed	1
Volleyball	1	Large mature trees	l

Table 8 -- Forest scenery preferences by forest description and rank 11 = most preferred), Caddo, 1992, sample size = 139

			Rank			Not
Forest description	1	2	3	4	.5	ranked
	 -	tre	quency	of re	sponse	5
Undisturbed	63	28	13	24	10	1
Large mature trees	14	44	40	25	5	2
Trees of mixed sizes and species	12	27	43	52	3	2
Younger tree species with open areas	0	7	3	16	109	4
Variety of natural features (cliffs, rocks, water, etc.)	50	33	30	18	8	n

Table 9 for a majority of respondents by sex, age, education, and munth of interview, Caddo, 1992

Preferred tranked first or second out of fives forest descriptions Table 10.- Preferred tranked first or second out of fives forest descriptions for a majority of respondents by principal activity, Caddo-1992

Demographic	Sample	Majority prefer	Majority preferred			
category	size	Description F	Frequency			
All respondents	139	Undisturbed	91			
Sex						
Male	90	Undisturbed	63			
Female	48	Variety of natural features	33			
Age class						
11/20	6	Variety of natural features	4			
21-30	21	Undisturbed	15			
31-40	47	Undisturbed	31			
41-50	3.2	Undisturbed	22			
51-60	13	Undisturbed	11			
61.70	15	Undisturbed	9			
71-80	2	Variety of natural features	1			
81 90	1	Younger tree species with open are	e a 5 1			
Education complete	ed					
≤ 8th grade	3	Large mature trees, variety				
		of natural features	2			
Some high school	H	Undisturbed	7			
High school	48	Undisturbed	32			
Some college	42	Undisturbed	33			
Associate degree	19	Variety of natural features	11			
Bachelor degree	15	Variety of natural features	12			
Month of interview						
June	6	Undisturbed	5			
July	60	Undisturbed	45			
August	72	Variety of natural features	47			

Principal	Sample	Majority preferred	
activity	size	Description Frequ	ency
All respondents	139	Undisturbed	91
Camping	68	Variety of natural features	45
Sightseeing	31	Undisturbed, variety of natural features	22
Swimming	21	Undisturbed	15
Picnicking	9	Variety of natural features	6
Family gathering	3	Variety of natural features	2
Walking	2	Variety of natural features.	
-		large mature trees	1
Backpacking	1	Variety of natural features	1
Relaxing	1	Variety of natural features	1
Running or jogging	g 1	Variety of natural features	1
Fishing	1	Variety of natural features	ı

Table 11. Forest scenery preferences by forest description and rank il =most preferred), Mena, 1992, sample size=87.

		F	Rank			Not
Forest description	1	2	3	4	5	ranked
		free	quency	of res	sponse	s
Undisturbed	38	13	7	20	7	2
Large mature trees	9	26	33	10	2	7
Trees of mixed sizes						
and species	10	21	21	27	1	7
Younger tree species						
with open areas	2	1	3	8	65	8
Variety of natural features						
(cliffs, rocks, water, etc.)	28	21	16	13	3	6

for a majority of respondents by sex, age, education, and month of interview. Mena. 1992

Demographic	Sample	Majority preferred	
category	size	Description Freque	ency
All respondents	85	Undisturbed	51
Sex			
Male	62	Undisturbed	18
Female	23	Undisturbed	13
Age class			
11 20	2	Variety of natural features	2
21-30	8	Variety of natural features	6
31-40	33	Undisturbed, variety of natural features	18
41-50	23	Undisturbed, variety of natural features	22
51-60	9	Undisturbed	7
61.70	8	Undisturbed, variety of natural features	5
71-80	2	Undisturbed	2
Education complete	ed		
≤ 8th grade	3	Undisturbed	3
Some high school	1 7	Undisturbed	5
High school	25	Trees of mixed sizes and species,	
		variety of natural leatures	14
Some college	26	Undisturbed	17
Associate degree	18	Variety of natural features	1.2
Bachelor degree	6	Undisturbed	5
Month of interview	•		
June	7	Undisturbed	6
July	72	Variety of natural features	42
August	6	Undisturbed	6

Fable 12.- Preferred (ranked first or second out of five) forest descriptions Table 13.- Preferred (ranked first or second out of five) forest descriptions for a majority of respondents by principal activity, Mena. 1992

Principal	Sample	Majority preferred	
activity	size	Description Freque	епсу
All respondents	85	Undisturbed	51
Camping	76	Undisturbed	46
Sightseeing	3	Undisturbed, variety of natural features	2
Swimming	2	Undisturbed, variety of natural features	1
Backpacking	ı	Variety of natural features	1
Family gathering	1	Undisturbed	- 1
Picnicking	1	Undisturbed	l
No purpose	1	Variety of natural leatures	- 1

Content Analysis of Forest Scenery Preferences

Contents of forest scenery preferences described by respondents are reported in table 14. All word and word combinations comprising 5 percent or more of the responses are listed. Differences by order of the question presented, i.e., after and before the question about ranking of supplied forest descriptions, are apparent.

After Ranking Forest Descriptions

(Winding Stair NRA and Lake Sylvia sites) - Words occurring 10 percent or more included "tree," "natural," "undisturbed," and "variety"--all of which were listed in the previous survey question. Word combinations included "mixed variety," "hills or mountains," and "large trees."

Before Ranking Forest Descriptions

(Caddo and Mena sites).--Words occurring 10 percent or more included "beauty," "natural," "as is," "quiet," and "trees." "Beauty" and "as is" are difficult to translate into management terms. No word combinations appeared that represented 10 percent or more of the responses.

Table 14 Frequently used word or word combinations given in answer to "What words would you use to describe your preference in forest sceners?" by order of question, site, and respondent frequency

Order of question. site, and number of respondents	Word	Frequency (percent)	Word combinations	Frequency (percent)
ne, and number of respondents	wold	(percent)	comonations	(percent)
After ranking forest descriptions				
Winding Stair NRA,	Tree	33 (42)	Mixed variety	18 (23)
all respondents = 78	Natural	32 (41)	Hills (and, or) mountains	12 (15)
	Undisturbed	21 (27)	Large trees	10 (13)
	Variety	14 (18)		
Lake Sylvia,	Natural	76 (27)	All water	12 (9)
all respondents = 283	Undisturbed	70 (25)	Hills (and, or) mountains	12 (9)
	Trees	51 (18)		
	Wild	22 (8)		
	Variety	22 (8)		
	Scenic	19 (7)		
	Mountains	16 (5)		
	Clean	13 (5)		
Before ranking forest descriptions				
Caddo.	Beauty	82 (59)	All water	12 (9)
all respondents = 140	Natural	71 (51)	Hills (and, or) mountains	12 (9)
	As is	20 (14)		
	Trees	12 (9)		
	Mountain	11 (8)		
	Clean	10 (7)		
	Quiet	9 (6)		
Mena,	Beauty	41 (47)	All water	7 (8)
all respondents = 87	Natural	40 (46)	Hills (and, or) mountains	4 (5)
	As is	11 (13)		
	Quiet	11 (13)		
	Trees	10 (11)		

DISCUSSION AND CONCLUSIONS

The questions added to the CUSTOMER survey provide insight into respondents' preferences for forest scenery and forest descriptions. The majority of respondents preferred "undisturbed," "variety of natural features," "natural," or "beauty" forest descriptions. Variation existed in preferences by principal activity, user characteristics, recreation activity, and sites surveyed. "Younger tree species with open areas" was associated with few activities and few respondent preferences.

Results are consistent with findings for other recreation area studies in which visitors preferred conditions that were natural, but parklike, with some vegetation management that limits understory vegetation density (Hammitt 1988, Ulrich 1977). Findings in our study indicate that natural, undisturbed scenes are preferred. Vegetation management also is important—primarily to maintain a variety of natural features.

It should be emphasized that forest descriptions are not mutually exclusive, as more than one description can be used for each site. However, the prevalence of high ranks for "undisturbed" and "variety of natural features" and low ranks for "younger tree species with open areas" suggests a consensus among respondents for the meaning of these phrases.

Notable are majority preferences for "large mature trees" and "trees of mixed sizes and species" for some principal activity categories at Lake Sylvia. Also, a large proportion of respondents at Lake Sylvia ranked secondary preferences at odds with the majority at other sites. Reasons for these differences are many, some of which were gleaned from CUSTOMER survey reports (Coker and others 1993a, 1993b; Reed and others 1992). Lake Sylvia sample locations were more numerous and diverse, associated with more diverse principal activities, tied to more developed areas, associated with more out-of-state visitors, and was, perhaps, better known than other sites in the CUSTOMER survey.

Preferred forest descriptions associated with particular recreation activities appear inconsistent amon, tes. Small sample size precluded detailed examination by site and activity. Sampling was not designed to compare differences among sites, as surveys were conducted at different times of the year. Because the primary goal was to describe results by site, it was decided not to combine the data or categories for this initial examination. For future analyses, combining data from all sites to provide a larger sample and to conduct additional analyses, such as discrimination and clustering of answers by respondents and by season, is recommended. Such a study could help researchers better understand differences between Lake Sylvia visitors and those from other sites and help managers gain insight into different customer market segments for forest-selected areas.

The data in these two questions supplement information about visitor preferences but have their limitations. Because respondents were interviewed at recreation areas, it is suspected that respondents may have been describing scenes in and around the interview site. The possibility exists that useful analysis of scenery preferences with other CUSTOMER survey data will provide insight into respondents' perceptions and related interests. It is recommended that future surveys incorporate photographs rather than descriptions, that direction regarding scenic-preference rankings depicting forest areas also include forest management areas outside the interview location, and that future surveys use ratings of scenic preference, rather than rankings, to improve opportunities for analysis.

Additional research on visitor preferences for forest scenes of pre- and postharvest stand-level (Phase II) treatments is planned (Baker 1994, Rudis and others 1994). Procedures will involve rating, rather than ranking, forest scenes as depicted in photographs—a procedure that permits increased statistical analysis and limits potential confounding of scenic preferences with views during onsite interviews. When combined with stand inventory information, photographs and forest scenery ratings should provide detailed information about vegetation conditions preferred by visitors.

ACKNOWLEDGMENTS

The authors express appreciation to the ORWAG study team for providing the data for this paper and allowing the Ecosystem Management visual quality research team to add the two questions about preferred forest scenery to the CUSTOMER surveys in the Ouachita National Forest. Special thanks to Gwen Hirsch, Mark Young, and Carter Betz for their help in explaining sampling methodology and data analysis.

LITERATURE CITED

Baker, James B. 1994. An overview of stand-level ecosystem management research in the Ouachita/Ozark National Forests. In: Baker, James B., ed. Ecosystem management research in the Ouachita Mountains: pretreatment conditions and preliminary findings: Proceedings of a symposium; 1993 October 26-27; Hot Springs, AR. Gen. Tech. Rep. New Orleans, LA: U.S. Department of Agriculture, Forest Service, Southern Forest Experiment Station.

- Coker, Jerry; Crane, Laura; Johnson, Cassandra; Hirsch, Gwen N.; Stueck, Ann. Ryder, Sean; Roberts, Cindy, 1993a. CUSTOMER final report, Quachita National Forest: Mena and Caddo Ranger Districts, Athens, GA: Outdoor Recreation and Wilderness Assessment Group, Southeastern Forest Experiment Station, 170 p.
- Coker, Jerry; Crane, Laura; Johnson, Cassandra; Hirsch, Gwen N.; Stueck, Ann; Ryder, Sean; Roberts, Cindy, 1993b. CUSTOMER final report, Quachita National Forest: Lake Sylvia recreation area. Athens, GA: Outdoor Recreation and Wilderness Assessment Group, Southeastern Forest Experiment Station, 189 p.
- Hammitt, William E. 1988. Visual and management preference of sightseers. In: Noe, Francis P.; Hammitt, William E., eds. Visual preferences of travelers along the Blue Ridge Parkway. Scientific Monogr. Series No. 18. Washington. DC: U.S. Department of the Interior, National Park Service. 26 p.
- Reed, Roger, Coker, Jerry: Hirsch, Gwen N.; Johnson, Cassandra; Ryder, Sean; Whitlock, Kristy, 1992. CUSTOMER final report: Winding Stair NRA, Quachita National Forest, Athens, GA: Outdoor Recreation and Wilderness Assessment Group, Southeastern Forest Experiment Station, 146 p.
- Rudis, Victor A.; Gramann, James H.; Herrick, Theresa A. 1994. Esthetics evaluation. In: Baker, James B., ed. Ecosystem management research in the Ouachita Mountains: pretreatment conditions and preliminary findings: Proceedings of a symposium: 1993 October 26-27; Hot Springs, AR. Gen. Tech. Rep. New Orleans, LA: U.S. Department of Agriculture, Forest Service, Southern Forest Experiment Station.

SAS Institute, Inc. 1989. SAS Version 6.07. Cary, NC: SAS Institute, Inc.

Ulrich, Roger S. 1977. Visual landscape preference: a model and application. Man-Environment Systems. 7: 279-293.

APPENDIX

Special Issues Section for Winding Stair National Recreation Area (NRA) CUSTOMER Study

Now, I have a few more questions about your use of this area

IN	TERVIEWER PLEASE TRY	TO WRITE WORD FOR W	ORD THE ANSWERS YOU RECEIVE.			
1	Are you aware that this area has been designated a National Recreation Area?					
	YES (go to 2)	NO (go to 3)				
2	Does this designation have any effect on your decision to recreate here?					
	YES	NO				
3	Are you aware that the road between Mena, AR and Talihena, OK (OK ROUTE 1 - AR ROUTE 88) is a National Scenic Byway?					
	YES	NO				
4	Did you pay a user fee to recreate here?					
	YES	NO				
5	Are you willing to pay higher	Are you willing to pay higher fees to recreate at an NRA than at other areas on the National Forest?				
	YES	NO				
6	Is there some particular featur	e of Winding Stair NRA that	attracts you here for recreation?			
	YES (please specif		NO			
7	Are there any problems occur	ring now that may have cause	I you to have an experience that was not as good as you expected?			
	YES (please specif		NO			
8	What could the Forest Service	do to make your recreation e	xperience better?			
ų	How do you feel about the Fo	rest Service allowing a privati	andividual to operate a concession (such as a small store) inside the NRA	١,		
	Good idea	Bad idea	Other comment			

10	Would yo	u use this type of service	e if it were availabl	e ⁿ		
	,	YES	NO	MAYBE	Other comment	
11	Would yo	u like to see outfitter/gu	iide services (such a	is horseback riding with renta	I horses) available in the NRA?	
		YES	NO			
12.	What add	monat facilities would y	ou like to see on or	near the NRA?		
		More campgrounds	YES	NO		
		Trails	YES	NO		
		Picnic areas	YES	NO		
		Visitor center	YES	SO		
		Ladge	YES	NO	On NRA	Near NRA
		Restaurant	YES	NO	On NRA	Near NRA
13	The Fore:	s Service would like to	improve some of th	e views and vistas along the	Tatihena Scenic Drive (Skyline Driv	e). How do you feel about
	the remov	al of a few trees in orde	er to do this?			
	Check all	that apply:				
		Think it's a good idea				
		Don't like the idea				
		Vistas are fine the way	they are			
		Would like to be able to	to see more as I'm o	inving		
		Other				
Qu	estion 14.	FOR TRAIL USERS OF	NLY:			
	14 How	do you feel about diffen	ent types of trail use	ers such as horses, hikers, mo	ountain bikes, all terrain vehicles sh	aring the same trails?
	14a. Do a	my particular uses interf	-	ahon sahsfachon?		
		YES	NO			
	If yes, wh	rich ones:				
	Horses					
	Hikers					
	Mountain					
	All-terrain	n vehicles				
	146 3576	r some of real more age i	.au an this tmm?			
	140. Wha	t type of trail user are y	ou on ans trip:			
	14c Do y	on ever do more than I	of the 4 activities a	nentioned above on these trai	ls?	
		YES	NO		· - ·	
	If yes wh	uch ones?				
	,					
ΓH	ESE LAST	I 2 QUESTIONS REFE	R TO YOUR PREF	ERENCES IN FOREST SCI	ENERY.	
15.					our preferences by marking "1" by	
	preferred	"2" next to the second	preference, "3" nex	it to the third preference, "4"	next to the fourth preference, and	"5" next to the least
	preferred.					
		Undisturbed				
		Large mature trees				
		Trees of mixed sizes as	nd species			
		Younger tree species, v	-			
		Variety of natural featu	ires (cliffs, rocks, v	vater, etc.)		
16.	What wor	ds would you use to de:	sonbe your preferer	ice in forest scenery?		